



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,264	05/08/2001	Johannes Petrus Verduijn	95M014/3	2981

23455 7590 06/27/2005

EXXONMOBIL CHEMICAL COMPANY
5200 BAYWAY DRIVE
P.O. BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER

NGUYEN, TAM M

ART UNIT	PAPER NUMBER
----------	--------------

1764

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,264

Applicant(s)

VERDUIJN ET AL.

Examiner

Tam M. Nguyen

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34 and 36-42 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 34 and 36-42 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 08 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Art Unit: 1764

DETAILED ACTION

Response to Amendment

The objection to claims 34, 41 and the tile is withdrawn by the examiner in view of the amendment filed on November 18, 2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 1764

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 34 and 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verduijn (5,396,009) (hereafter "Verduijn-1") in view of Verduijn et al. (5,064,630) (hereafter "Verduijn-2").

Verduijn-1 discloses a process for isomerization of an aliphatic hydrocarbon to produce aromatic hydrocarbons by contacting the aliphatic hydrocarbon with a catalyst comprising a Group VIII metal, and L-zeolite (which is the same as LTL zeolite) wherein the L-zeolite comprises alumina and crystallizes in the form of cylinders with basal planes of such a shape that the ratio of axial length of curved cylindrical surface (l) to the overall axial length of the crystallite (h) is greater than 0.9, the length of the crystallites is greater than 0.9 ($h = 1$), and the mean diameter of the crystallites is in the range of at least 0.051. Since the ratio of the axial length of the cylindrical surface (l) to the mean diameter (d) is preferably at least 0.51 (or .75-5) while l is preferably about the same as h and d is preferably of from 0.1 to 0.51, it is estimated that when d equals 0.11 and l/d equals .75, the mean length of the crystallites would be less than 0.6 microns (e.g., 0.075). The contacting step is at a temperature of from 370 to 600° C. (See abstract; col. 5, lines 1-25; col. 11, lines 32-64)

Claim 34 and 42:

Verduijn-1 does not disclose that the catalyst comprises gallium. However, Verduijn-2 discloses an aromatization process wherein the process utilizes L-zeolite comprising either gallium or aluminum (see Verduijn-2; abstract; col. 1, lines 59-65; col. 5, lines 1-13; col. 7, lines 37-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time

Art Unit: 1764

the invention was made to have modified the process of Verduijn-1 by utilizing gallium instead of aluminum as taught by Verduijn-2 because gallium has an equivalent function as aluminum in the catalyst. As a result, the modified zeolite of Verduijn-1 would not comprise aluminum.

Claims 36, 37 and 41:

The mean diameter of the crystallites ranges from 0.1 to 0.51 (see col. 5, lines 23-24)

Claim 38, 39 and 41:

Since the ratio of the axial length of the cylindrical surface (l) to the mean diameter (d) is preferably at least 0.51 (or .75-5) while l is preferably about the same as h and d is preferably of from 0.1 to 0.51, it is estimated that when d equals 0.21 and l/d equal 1, the mean length of the crystallites is 0.21. (See col. 5, lines 1-25)

Claim 40:

The aspect ratio of length to diameter of the crystallites is at least 0.5 microns (this overlaps the claimed aspect ratio). See Verduijn-1 col. 5, lines 16-18.

Alternatively,

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verduijn (5,396,009) (hereafter "Verduijn-1") in view of Verduijn et al. (5,064,630) (hereafter "Verduijn-2") and Verduijn (WO 91/06367) (hereafter Verduijn-3).

The processes of Verduijn-1 and Verduijn-2 are discussed above.

Both Verduijn-1 and Verduijn-2 do not specifically disclose that the aspect ratio of length (h) to diameter (d) of the crystallites is **at most** 0.51. However, Verduijn-3 discloses an aromatization process wherein a L-zeolite with an aspect ratio of length to diameter of the crystallites at most of 0.51 is used (see Verduijn-3; page 3, lines 22-24; page 23; lines 3-6).

Art Unit: 1764

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Verduijn-1/Verduijn-2 by utilizing a L-zeolite having the h/d ratio of from 0.2 to 0.51 as taught by Verduijn-3 because such ratios would result in better yield and selectivity.

Response to Arguments

The argument that one of skill in the art could not make gallium-containing LTL zeolite which has dimensions as set forth in the instant claims by following the teachings of Verduijn-1 is not persuasive because Verduijn-1 teaches the claimed dimensions (see col. 5, lines 1-25). Verduijn-1 also teaches that aluminum can be substituted by gallium (see col. 6, lines 7-11). In addition, Verduijn-2 teaches that gallium has an equivalent function as aluminum in the catalyst.

The argument that Verduijn-2 and Verduijn-3 do not teach or suggest gallosilicate zeolites having the claimed dimensions is not persuasive because Verduijn-1 already teaches the claimed gallosilicate zeolites having the claimed dimensions.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam M. Nguyen whose telephone number is (703) 305-7715. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-9311 for After Final communications.

Art Unit: 1764

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tam M. Nguyen
Examiner
Art Unit 1764

 6/21/05

TN
June 21, 2005